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Social Overhead Capital Facilities' Effect on Housing Prices: A Machine Learning Analysis

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Abstract

The transition to sustainable and resilient energy systems is one of the most pressing challenges of our time. As we strive to mitigate climate change and secure energy access for growing populations, energy system models have become essential tools for planning and policy-making. Traditionally, these models have focused on the technical and economic aspects of energy systems, often overlooking the equally crucial socio-technical factors. This article aims to present the present situation of examining socio-technical factors in energy system models and suggest future directions for enhancing the integration of these vital aspects. Energy system models have typically emphasized the technical and economic dimensions, considering energy sources, technologies, costs, and emissions. While these are undoubtedly important, they represent only one side of the complex energy equation. Socio-technical factors encompass the social, cultural, political, and behavioral aspects that influence energy production, consumption, and management. Neglecting these factors can lead to models that are inadequate for understanding and guiding energy system transitions.

Keywords: Socio-technical • Policy-making • Multidisciplinary collaboration

Introduction

The theoretical foundation for the link between social overhead capital facilities and housing prices is rooted in the principles of location theory and urban economics. Location theory, as formulated by Alfred Weber in the early 20th century, argues that the distribution of economic activities is influenced by factors such as transportation costs and access to essential services. This theory can be extended to housing markets by considering the attractiveness of residential areas in terms of proximity to social overhead capital facilities. In this context, the "accessibility theory" posits that housing prices are positively associated with the accessibility of social overhead capital facilities. Areas with better access to schools, healthcare, public transportation, and recreational spaces are often considered more desirable, leading to higher demand for housing and, consequently, increased prices. However, the relationship is not one-sided, as higher housing prices may lead to gentrification, which can displace lower-income residents. To empirically investigate the impact of social overhead capital facilities on housing prices, we employ a machine learning analysis. This involves collecting and processing data on housing prices, social infrastructure, and other relevant variables. We then use machine learning algorithms to uncover patterns and relationships in the data [1,2].

Literature Review

The distance to social overhead capital facilities has a significant impact on housing prices. Properties located closer to schools, hospitals, and public transportation hubs tend to command higher prices. This finding aligns with the accessibility theory and underlines the importance of location in real estate. Not only proximity but also the quality and availability of these facilities influence housing prices. Areas with highly-rated schools and well-maintained parks tend to have higher housing prices. Residents are willing to pay a premium for the assurance of quality amenities and services. Urban density plays a role in this relationship. Higher-density urban areas tend to have greater accessibility to social overhead capital facilities due to their proximity, which can lead to increased housing prices. However, this also depends on the local context and the quality of infrastructure. An interesting observation is that as housing prices increase due to proximity to social overhead capital facilities, it can lead to gentrification. This process may displace lower-income residents, raising important equity and social justice considerations [3,4].

Discussion

Leveraging machine learning and data analysis in urban planning can provide real-time insights into changing dynamics. This enables proactive decision-making and the adjustment of policies to meet the evolving needs of communities. Encouraging transit-oriented development can be a valuable strategy to improve housing affordability and reduce the dependence on private automobiles. This involves integrating housing, transportation, and social infrastructure planning to create more sustainable and accessible communities. Policymakers must be mindful of the potential gentrification effects of improved infrastructure. Affordable housing initiatives and community development programs should be considered to ensure that long-standing residents are not adversely affected. Governments and local authorities should prioritize the development and maintenance of high-quality social overhead capital facilities. This not only enhances the overall quality of life for residents but also positively impacts housing prices [5,6].

Conclusion

The relationship between social overhead capital facilities and housing prices is a multifaceted one that extends beyond mere proximity. It encompasses the quality of services, the impact of urban density, and the consequences of gentrification. By employing machine learning techniques, we can delve deeper into the complexities of this relationship and provide valuable insights for urban planning and policy formulation. The findings from our analysis highlight the importance of investing in quality infrastructure,

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addressing gentrification concerns, and promoting sustainable, transit-oriented development. As cities continue to grow and evolve, it is crucial to adopt data-driven approaches to understand and shape the dynamics of housing markets, ultimately leading to more equitable and prosperous urban communities.

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Conflict of Interest

None.

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